Systems and Mission Integration

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Precision Strike Association

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Current Situation
What We Need to Do Better

Requirements

- Adapting to changing conditions
- Matching operational needs with systems solutions
- Overcoming biases of Services and others
- Moving to transform military

PPBES

- Laying analytical foundation for budget
- Aligning budgets with acquisition decisions

Personnel and Readiness

- Treating people as a

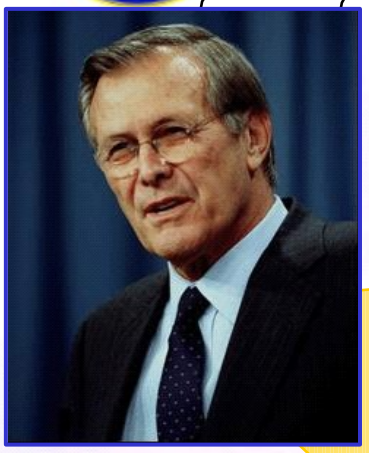
Acquisition

- Acquiring systems-of-systems
- Making system decisions in a joint, mission context
- Transitioning technology
- Assessing complexity of new work and ability to perform it
- Controlling schedule and cost
- Passing operational tests
- Ensuring a robust industrial base

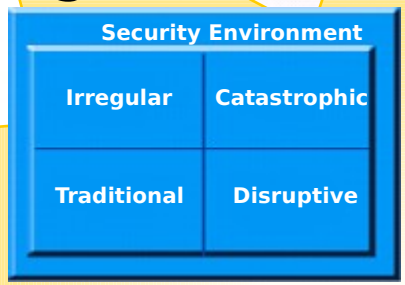
Sustainment

- Controlling O&S costs
- Reducing logistics tails

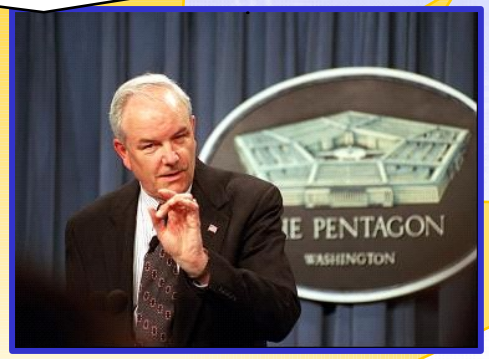
Leadership and Goal Alignment



Leadership Alignment



Goal Alignment



USD (AT&L) Seven Goals

- ❑ Acquisition Excellence with Integrity
- ❑ Logistics: Integrated and Efficient
- ❑ Systems Integration & Engineering for Mission Success
- ❑ Technology Dominance
- ❑ Resources Rationalized
- ❑ Industrial Base Strengthened
- ❑ Motivated, Agile Workforce

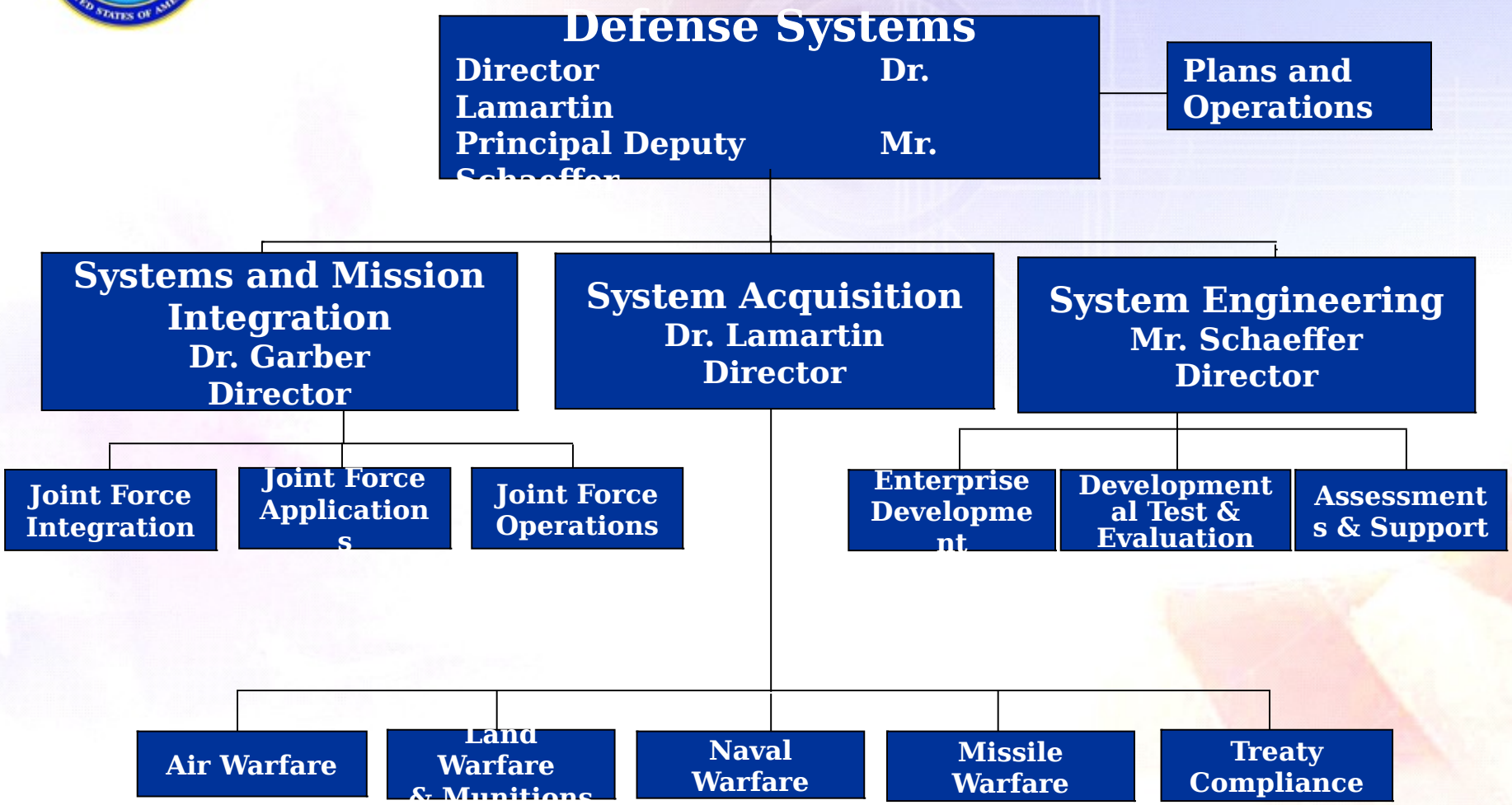
SECDEF Top 10 Priorities

- **Successfully Pursue the Global War on Terrorism**
- **Strengthen Combined/Joint Warfighting Capabilities**
- **Transform the Joint Force**
- **Optimize Intelligence Capabilities**
- **Counter Proliferation of WMD**
- **Improve Force Manning**
- **New Concepts of Global Engagement**
- **Homeland Security**
- **Streamline DoD Processes**
- **Reorganize DoD and USG to Deal with Pre-War Opportunities and Post-War Responsibilities**

USD(AT&L) Imperatives for Defense Systems

- **“Provide a context within which I can make decisions about individual programs.”**
- **“Achieve credibility and effectiveness in the acquisition and logistics support processes.”**
- **“Help drive good systems engineering practice back into the way we do business.”**

Organization of the Defense Systems Directorate, OUSD(AT&L)



Systems and Mission Integration

What are the right things to do?

- **Leads the development of integrated plans and/or roadmaps**
- **Leads the development of systems views of integrated architectures**
- **Establishes a broader context for DAB reviews for individual systems**
- **Leads DAB reviews for Capability Areas**
- **Fosters interoperability, joint and coalition capabilities**
- **Conducts systems assessments to judge how well newly fielded systems meet capability needs**
- **Develops/refines systems engineering concepts and practices for application at the architecture level**

Systems Acquisition

How to best buy the right things?

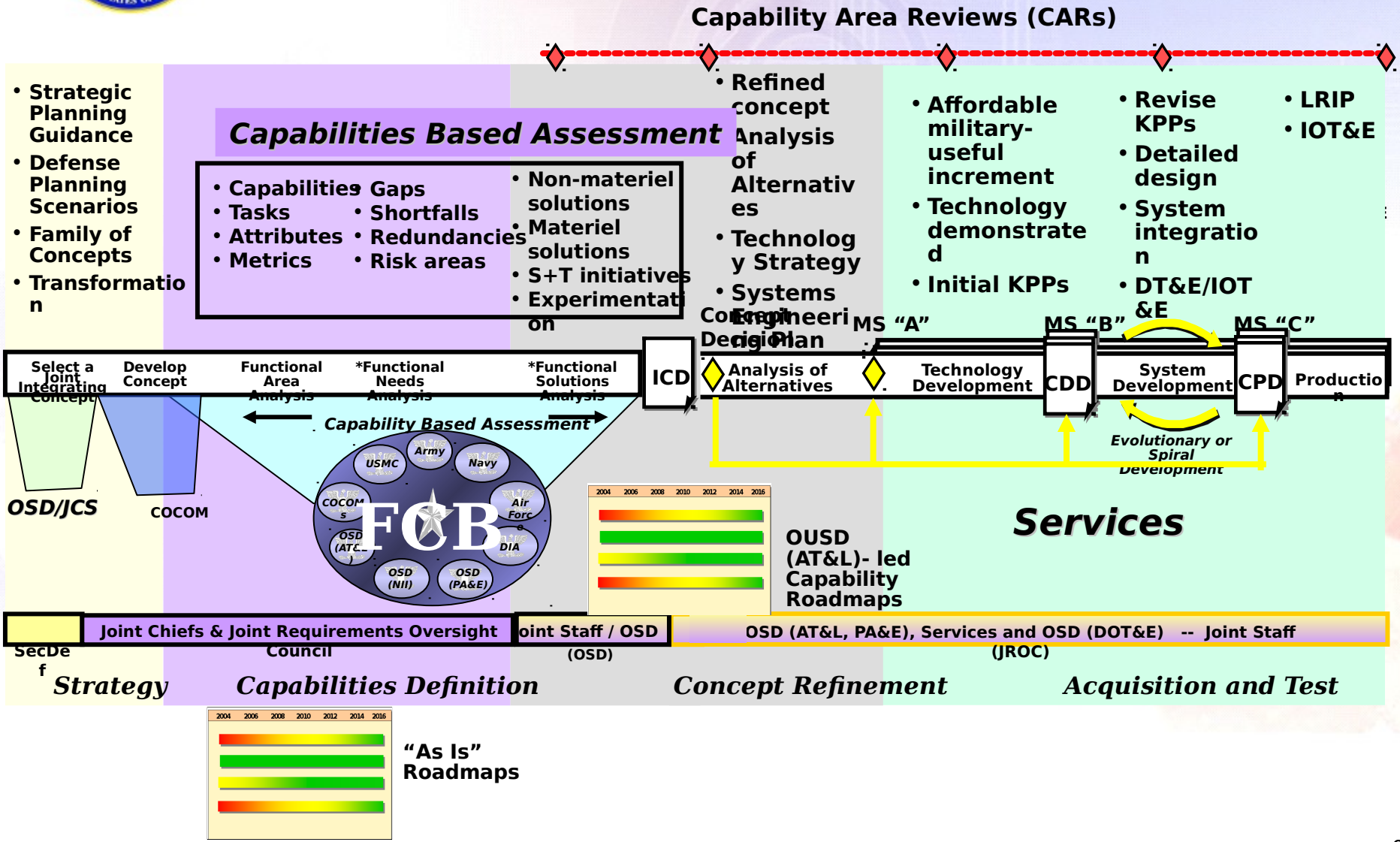
- **Responsible for technical review and program oversight of assigned acquisition programs**
- **Leads overarching integrated product teams for strategic and tactical systems; develops recommendations on major weapon systems for the Defense Acquisition Board**
- **Provides technical support to arms negotiations, makes recommendations concerning treaty implications on the acquisition of new systems, and monitors compliance with treaties**
- **Tailoring the application of the revised DoD 5000 series**
- **Emphasis now on helping programs succeed and transition to new Department processes**

Systems Engineering

How to do things right?

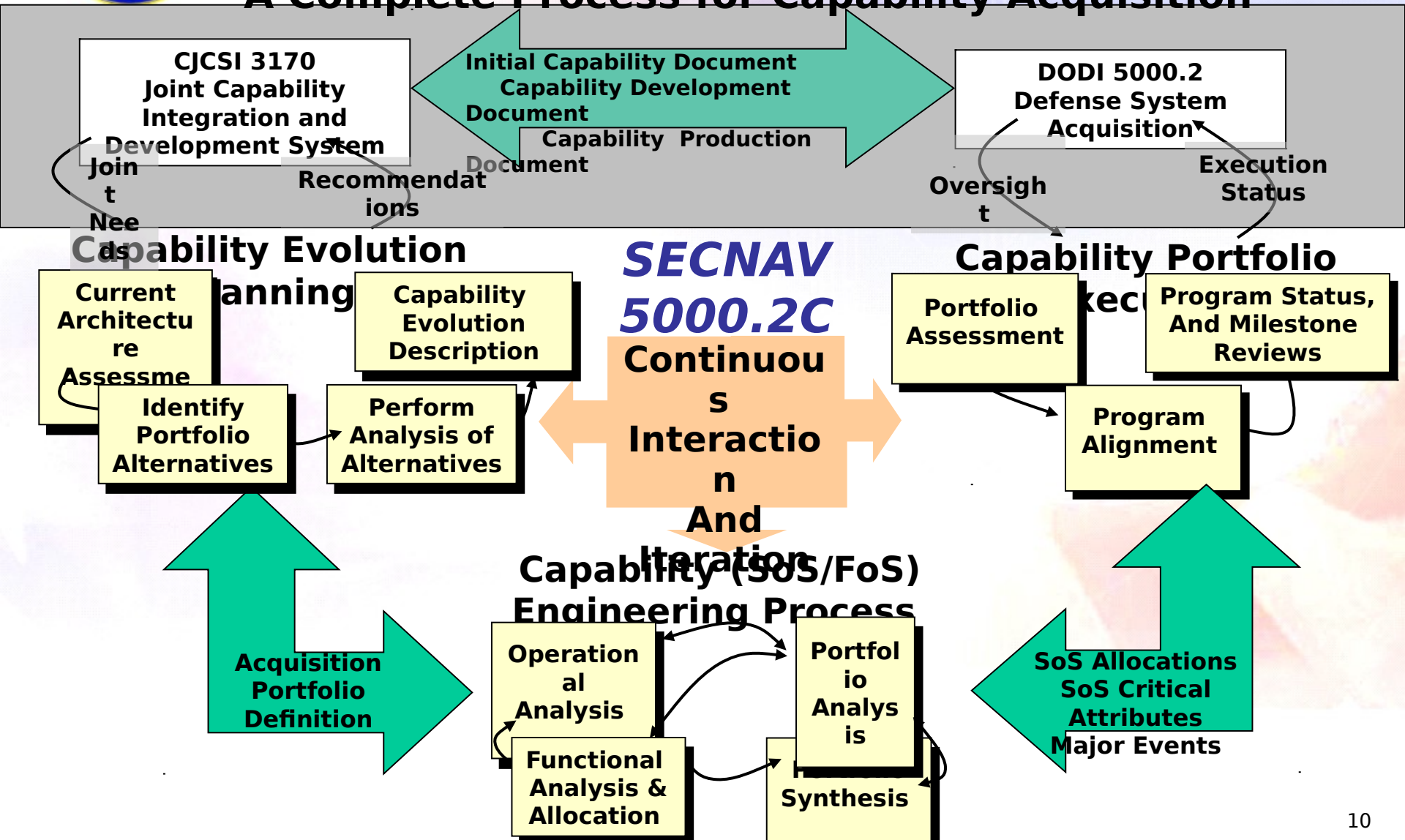
- Defines “good systems engineering” for the Department
- Finds, captures, and shares best practices
- Establishes systems engineering policy and procedures
- Implements education of government and industry workforce
- Conducts outreach with industry, academia, associations, individual programs, and others
- Directs and manages SE and SW studies and reviews
- Focal point for developmental test and evaluation
- Provides program support to Program Managers

DoD End-to-End Capabilities Definition, Acquisition and Test Process



Naval Capability Evolution Process

A Complete Process for Capability Acquisition



Capability Area Reviews

USD(AT&L), as DAE, will lead reviews of select capability areas to:

- **Provide mission area context – from a top-down perspective**
- **Implement capability-based methodology on provider side**
- **Link policy, capability generation, acquisition, and budget processes**
- **Identify joint solutions and added work to be done (across DOTMLPF)**
- **Reveal need for management, engineering, and testing across an area**
- **Help align individual program expectations**
- **Provide basis to set metrics and gauge progress over time**
- **Assess the cumulative effect of individual program**

Roadmaps and Roadmapping

Roadmaps provide a framework for decision making – prompt discussion, inform decisions, and capture decisions made

- **Lay out Department's strategic plan considering:**
  - **Materiel and non-materiel solutions**
  - **Capability that only exists at Family/System-of-Systems level**
  - **What to expect from each system**
  - **Cross-cutting management, engineering, and testing**
  - **Network enablers**
  - **Affordability**
- **Nature of Roadmaps will vary by topic**
- **Start with the "as is" and show where we want to go**

But… must balance decisions across capability areas

Key Roadmaps and Related Activities

Accomplishments

- Dec 02 – *UAV Roadmap*
- Oct 03 – *Information Operations Roadmap*
- Apr 04 -- *Joint Battle Management Command and Control (JBMC2) Roadmap*
- May 04 -- *Air and Missile Defense (AMD) Roadmap*
- Nov 04 -- SecDef and CJCS endorse *JBMC2 Roadmap*

2005 Actions

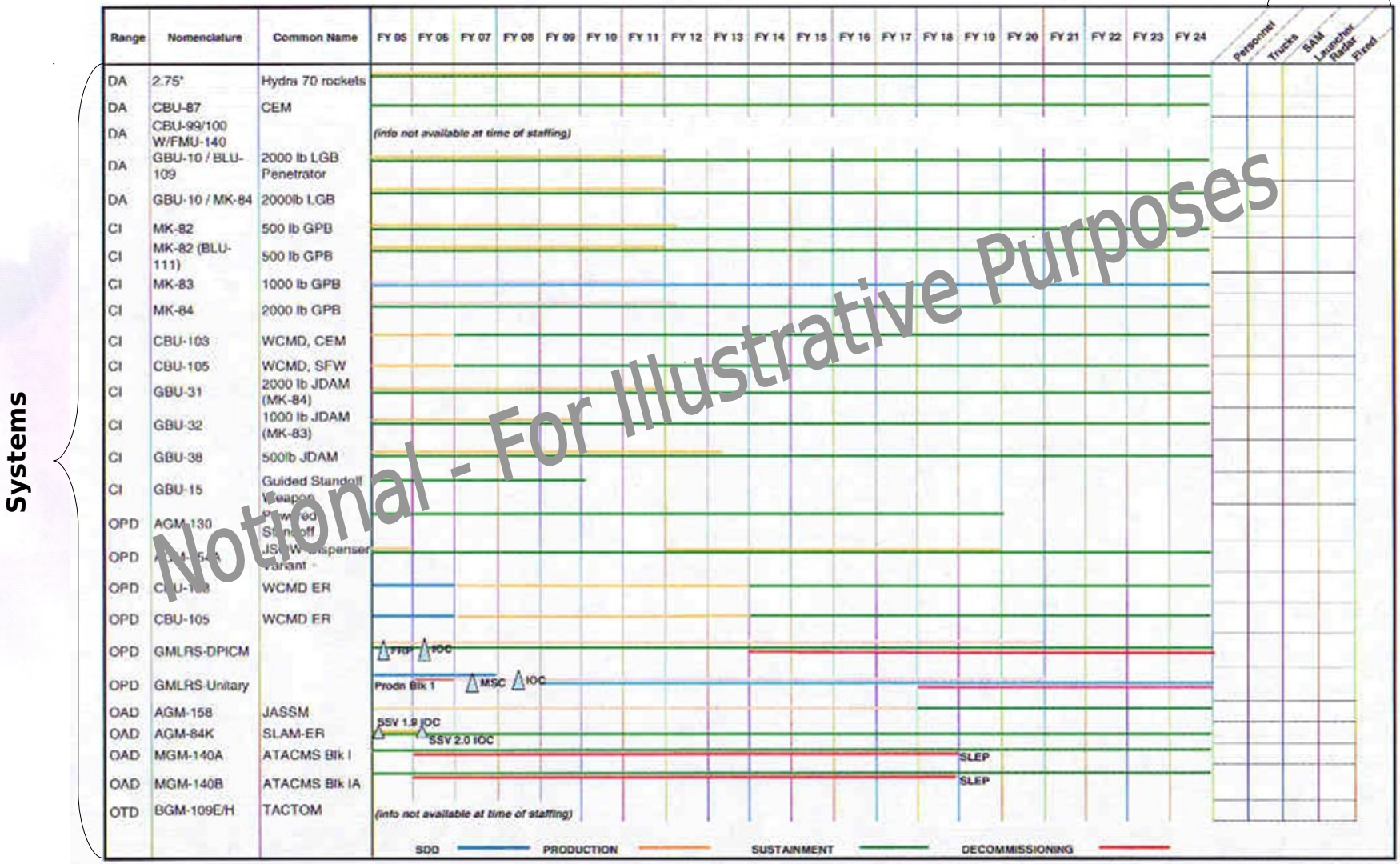
- *UAV Roadmap Update*
- *JBMC2 Roadmap Update*
- *Integrated Air and Missile Defense Roadmap Update*
- *Electronic Warfare Roadmap*
- *Directed Energy Roadmap*
- *Conventional Engagement Capability* (formerly Land Attack Weapons) *Roadmap*
- *Precision Engagement Capability Roadmap*
- *Joint Network Fires Capability Roadmap*

Example: Conventional Engagement Capability Roadmap (CECR)

*AKA "Land Attack Weapons Roadmap"

1. INTRODUCTION
2. CECR CONTEXT
3. DEPENDENCIES AND ISSUES
   - Kill Chain
   - Engagement Interdependencies and Issues
4. WEAPONS INFORMATION
   - Weapon Programs
   - Weapon/Platform Integration
5. ENGAGEMENT CAPABILITY ASSESSMENT RESULTS AND GAP ANALYSIS
   - Moving Target Assessment
   - Area Target Assessment
6. ROADMAP
7. EXPERIMENTATION AND EMERGING TECHNOLOGY
8. CONCLUSIONS AND RECOMMENDATIONS
9. APPENDICES

Example: Conventional Engagement Capability Roadmap - Area Target Capability Roadmap


Capabilities
Systems
Range
Nomenclature
Common Name
FY 05 FY 06 FY 07 FY 08 FY 09 FY 10 FY 11 FY 12 FY 13 FY 14 FY 15 FY 16 FY 17 FY 18 FY 19 FY 20 FY 21 FY 22 FY 23 FY 24
Personnel
Trucks
SAM Launcher
Radar
Fired
DA 2.75" Hydra 70 rockets
DA CBU-87 CEM
DA CBU-99/100 W/FMU-140
(info not available at time of staffing)
DA GBU-10 / BLU-109 2000 lb LGB Penetrator
DA GBU-10 / MK-84 2000lb LGB
CI MK-82 500 lb GPB
CI MK-82 (BLU-111) 500 lb GPB
CI MK-83 1000 lb GPB
CI MK-84 2000 lb GPB
CI CBU-103 WCMD, CEM
CI CBU-105 WCMD, SFW
CI GBU-31 2000 lb JDAM (MK-84)
CI GBU-32 1000 lb JDAM (MK-83)
CI GBU-38 500lb JDAM
CI GBU-15 Guided Standoff Weapon
OPD AGM-130 Powered Standoff
OPD JSOW Dispenser Variant
OPD WCMD ER
OPD CBU-105 WCMD ER
OPD GMLRS-DPICM FRP IOC
OPD GMLRS-Unitary Prodn Blk 1 MSC IOC
OAD AGM-158 JASSM
OAD AGM-84K SLAM-ER SSV 1.9 IOC SSV 2.0 IOC
OAD MGM-140A ATACMS Blk I SLEP
OAD MGM-140B ATACMS Blk IA SLEP
OTD BGM-109E/H TACTOM
(info not available at time of staffing)
SDD
PRODUCTION
SUSTAINMENT
DECOMMISSIONING
Notional - For Illustrative Purposes

Example: Systems Context for DAB Reviews

SDB Increment I Complementary Systems

Complementary Systems:
- JDAM
- GBU Series
- MK 80 Series

Threshold Fixed Wing Platforms:
- F-15E

Objective Fixed Wing Platforms:
- F/A-22
- JSF
- UCAV
- F-16 (30/40/50)
- F-117
- A-10
- MQ-9
- B-1
- B-2

ISR:
- DPPDB
- GPS

Notional - for Illustrative Purposes

- Cost, Schedule, Performance & Integration Support Fielding
- Cost, Schedule, Performance & Integration Issues
- Cost, Schedule, Performance & Integration Deficiencies Prevent Fielding

SOLID DENOTES CURRENT SYSTEM
DASH DENOTES FUTURE SYSTEM

Status: Cost Sched Perf Not Rated

Our Shared Challenges

- **Focus shifting from platforms to capabilities and joint system solutions**
- **System complexity is increasing: Family-of-Systems and/or System-of-Systems interdependencies**
- **Understanding what capabilities only exist in the Family-of-Systems or System-of-Systems**
- **Demand for net-centric capability drives higher levels of integration**
- **Functional and physical interfaces expanding in number and complexity**
- **Testing System-of-Systems capabilities (demands on R&D and operational assets; JDEP-like approach)**
- **Evolutionary acquisition institutionalizing change**
- **New approaches in design and development must match new systems views**